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PATENT**

IN THE CLAIMS

1. (previously presented) A method for detecting faults in a transducer including a secondary winding having at least two voltage outputs, the transducer being electrically connected to a logic circuit, said method comprising the steps of:

summing the voltage outputs to obtain a summed voltage value;

determining a difference between a current value of the summed voltage value to a reference value; and

if an absolute value of the difference between a current value of the summed voltage value and the reference value exceeds a freeze threshold, then maintaining the reference value constant; and

detecting faults in at least one of a rotary voltage differential transducer (RVDT) and a linear voltage differential transducer (LVDT) based on the determined absolute value.

2. (original) A method in accordance with Claim 1 wherein if the absolute value of the difference between a current value of the summed voltage value and the reference value exceeds a default threshold, then generating a fault indicator signal.

3. (previously presented) A method in accordance with Claim 2 wherein if the absolute value of the difference between a current value of the summed voltage value and the reference value is less than the fault threshold, then generating a confidence factor ~~indicative of a likelihood that~~ representing that a fault has occurred.

4. (previously presented) A method in accordance with Claim 3 wherein the freeze threshold value is ~~about~~ approximately equal 0.05 Vrms, and wherein the fault threshold value is ~~about~~ approximately equal 0.08 Vrms.

5. (original) A method in accordance with Claim 1 wherein the reference value is representative of a value of a sum of the secondary voltages of the transducer under no faults.

6. (previously presented) Apparatus for detecting faults in a transducer including a secondary winding having at least two voltage outputs, the transducer being electrically

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connected to a logic circuit implemented in at least one of an on-board interface and an on-board controller, said apparatus comprising:

a short term filter for generating a first voltage value representative of a current value of a sum of the secondary winding output voltages;

a long term filter for generating a second voltage value representative of a non-faulted value of a sum of the secondary winding output voltages, at least one of said short term filter and said long term filter configured to maintain said second voltage value constant; and

~~a comparator~~ summer for generating a difference signal representative of a difference between the first voltage value and the second voltage value, said apparatus configured to detect faults in at least one of a rotary voltage differential transducer (RVDT) and a linear voltage differential transducer based on the difference signal.

7. (original) Apparatus in accordance with Claim 6 wherein said short term filter comprises a one pole lag filter.

8. (original) Apparatus in accordance with Claim 7 wherein said one pole lag filter has a time constant of 0.150 seconds.

9. (original) Apparatus in accordance with Claim 6 wherein said long term filter comprises a one pole lag filter.

10. (original) Apparatus in accordance with Claim 9 wherein said one pole lag filter has a time constant of 30 seconds.

11 (original) Apparatus in accordance with Claim 6 wherein if an absolute value of the difference between the first voltage value and the second voltage value exceeds a freeze threshold, then said long term filter maintains said second voltage value constant.

12. (original) Apparatus in accordance with Claim 11 wherein if the absolute value of the difference between the first voltage value and the second voltage value exceeds a fault threshold, then said apparatus generates a fault indicator signal.

13. (original) Apparatus in accordance with Claim 12 wherein if the absolute value of the difference between the first voltage value and the second voltage value is less than the fault threshold, then said apparatus generates a confidence factor.

Via Facsimile: (571) 273-1968

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14. (previously presented) Apparatus in accordance with Claim 12 wherein the freeze threshold value is ~~about~~ approximately equal 0.05 Vrms, and wherein the fault threshold value is ~~about~~ approximately equal 0.08 Vrms.

15. (previously presented) Apparatus for detecting faults in a transducer including a secondary winding having at least two voltage outputs, the transducer being electrically connected to a logic circuit implemented in at least one of an on-board interface and an on-board controller, said apparatus comprising:

a short term filter for generating a first voltage value representative of a current value of a sum of the secondary winding output voltages, said short term filter comprising a one pole lag filter;

a long term filter for generating a second voltage value representative of a non-faulted value of a sum of the secondary winding output voltages, said long term filter comprising a one pole lag filter; and

a ~~comparator~~ summer for generating a difference signal representative of a difference between the first voltage value and the second voltage value, if an absolute value of the difference between the first voltage value and the second voltage value exceeds a freeze threshold, then said long term filter maintains said second voltage value constant, and if the absolute value of the difference between the first voltage value and the second voltage value exceeds a fault threshold, then said apparatus generates a fault indicator signal, said apparatus configured to detect faults in at least one of a rotary voltage differential transducer (RVDT) and a linear voltage differential transducer based on the determined absolute value.

16. (original) Apparatus in accordance with Claim 15 wherein said short term one pole lag filter has a time constant of 0.150 seconds.

17. (original) Apparatus in accordance with Claim 15 wherein said long term one pole lag filter has a time constant of 30 seconds.

18. (original) Apparatus in accordance with Claim 15 wherein if the absolute value of the difference between the first voltage value and the second voltage value is less than the fault threshold, then said apparatus generates a confidence factor.